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PATENTS ACT 1990

PATENT REQUEST : STANDARD PATENT

I/We being the person(s) identified below as the Applicant(s), request the grant of a patent to the person(s) identified below as the Nominated Person(s), for an invention described in the accompanying standard complete specification.

Full application details follow:

[71/70] Applicant(s)/Nominated Person(s):

Edward Joseph Khoury

of

49 Rae Frankel Street, Brackenhurst, Alberton, Transvaal, Republic of South Africa

[54] Invention Title:

Crats

[72] Name(s) of actual inventor(s):

Edward Joseph KHOURY

[74] Address for service in Australia:

DAVIES COLLISON CAVE, Patent Attorneys, 1 Little Collins Street,
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Basic Convention Application(s) Details:

[31] Application Number	[33] Country	Code	[32] Date of Application
91/4077	Republic of South Africa	ZA	29 May 1991

DATED this TWENTY SECOND day of MAY 1992



a member of the firm of
DAVIES COLLISON CAVE for
and on behalf of the
applicant(s)

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NOTICE OF ENTITLEMENT

1. Edward Joseph Khoury, the applicant/Nominated Person named in the accompanying Patent Request state the following:-

The Nominated Person is entitled to the grant of the patent because the Nominated Person is the inventor.

The Nominated Person is entitled to claim priority from the basic application listed on the patent request because the Nominated Person made the basic application, and because that application was the first application made in a Convention country in respect of the invention.

DATED this TWENTY SECOND day of MAY 1992



a member of the firm of
DAVIES COLLISON
CAVE for and on behalf
of the applicant(s)

(DCC ref: 1499192)



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91/4077 29.05.91 ZA SOUTH AFRICA
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- (71) Applicant(s)
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EDWARD JOSEPH KHOURY
- (74) Attorney or Agent
DAVIES COLLISON CAVE, 1 Little Collins Street, MELBOURNE VIC 3000
- (56) Prior Art Documents
AU 87293/82 B65D
AU 43354/88 57.2
AU 47095/89 57.2
- (57) Claim
1.

A reusable demountable crate comprises:

a base,

first, second, third and fourth sides hingedly attached to the base so that the sides are movable between a demounted position in which the sides are in the same plane as the base and an assembled position in which the sides are at right angles to the base to form the crate, and

releasable attachment means between each of the first and second sides, the second and third sides, the third and fourth sides, and the fourth and first sides, releasably to hold the sides in the assembled position,

the attachment means comprising an elongate channel-shaped member on an edge of one side adjacent an edge of the other side, and a flange on the adjacent edge of the other side, the flange adapted to be received in the open mouth of the elongate channel-shaped member and to abut an inner wall of the elongate channel-shaped member to hold the two sides in the assembled position, and the elongate channel-shaped member being adapted to be bent away from the flange to release the flange to allow the two sides to move to

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the demounted position, the elongate channel-shaped member and the flange being formed integrally with their respective sides, and the attachment means further comprising a pair of lugs on the same edge as the elongate channel-shaped member, one lug located near the top and the other lug located near the bottom of the edge and a pair of openings in the same edge as the flange, each opening being designed to receive a lug when the sides are in the assembled position, the crate being made from a suitable plastics material.

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PATENTS ACT 1990
COMPLETE SPECIFICATION

NAME OF APPLICANT(S):

Edward Joseph Khoury

ADDRESS FOR SERVICE:

DAVIES COLLISON CAVE
Patent Attorneys
1 Little Collins Street, Melbourne, 3000.

INVENTION TITLE:

Crate

The following statement is a full description of this invention, including the best method of performing it known to me/us:-

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~~BACKGROUND OF THE INVENTION~~

This invention relates to a reusable demountable crate.

Commodities such as agricultural produce are frequently stored and transported in crates. These crates may be made of cardboard, in which case they are generally only used once. Alternatively, the crates may be made of a plastics material so that they may be reused. However such plastic crates suffer from the disadvantage that they take up storage space when not being used. There is thus a need for a new type of crate which is reusable and which is demountable when not in use.



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According to the invention there is provided a reusable demountable crate comprising:

a base,

first, second, third and fourth sides hingedly attached to the base so that the sides are movable between a demounted position in which the sides are in the same plane as the base and an assembled position in which the sides are at right angles to the base to form the crate, and

releasable attachment means between each of the first and second sides, the second and third sides, the third and fourth sides, and the fourth and first sides, releasably to hold the sides in the assembled position,

the attachment means comprising an elongate channel-shaped member on an edge of one side adjacent an edge of the other side, and a flange on the adjacent edge of the other side, the flange adapted to be received in the open mouth of the elongate channel-shaped member and to abut an inner wall of the elongate channel-shaped member to hold the two sides in the assembled position, and the elongate channel-shaped member being adapted to be bent away from the flange to release the flange to allow the two sides to move to the demounted position, the elongate channel-shaped member and the flange being formed integrally with their respective sides, and the attachment means further comprising a pair of lugs on the same edge as the elongate channel-shaped member, one lug located near the top and the other lug located near the bottom of the edge and a pair of openings in the same edge as the flange, each opening being designed to receive a lug when the sides are in the assembled position,

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the crate being made from a suitable plastics material.

Preferably, one or more of the sides and/or the base include one or more ventilation holes to provide ventilation in the crate.

Preferably, the edges of the ventilation holes in the interior of the crate are rounded to prevent damage to commodities such as agricultural produce contained in the crate.

Preferably, the ventilation hole or holes in the first side of the crate are in register with the ventilation hole or holes in the third side of the crate and likewise, the ventilation hole or holes in the second side of the crate are preferably in register with the ventilation hole or holes in the fourth side of the crate, to assist with the ventilation.

Two of the sides of the crate may also include carrying holes for carrying of the crate.

The crate may be made of any suitable plastics material such as high density polyethylene or polypropylene.

An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:



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Figure 1 is a perspective view of a crate of a preferred embodiment of the invention in its demounted position;

Figure 2 is a perspective view of the crate in its assembled position;

Figures 3 and 4 are perspective views of a detail of the attachment means of the crate of Figure 2; and

Figure 5 is a sectional view of the attachment means of Figures 3 and 4.

Referring to Figures 1 to 3, there is shown a crate 10 consisting of a base 12, a first side 14, a second side 16, a third side 18 and a fourth side 20. The sides 14, 16, 18, 20 are hingedly attached to the base 12 by means of hinges 22. It can be seen that the sides 14, 16, 18, 20 are movable between a demounted position shown in Figure 1 in which they are in the same plane as the base 12, and an assembled position shown in Figure 2 in which they are at right angles to the base 12, to form the crate 10.



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The side 16 includes along its edges 24, 26, clips 28, 30, which are designed to cooperate with flanges 32, 34 on the edges 36, 38 of the side 18 and the side 14 respectively. The clips 28, 30 are designed to be releasably attached to the flanges 32, 34 to hold the sides 14, 16, 18 in the assembled position shown in Figure 2 in use. The clips 28, 30 are releasable from the flanges 32, 34 to allow the sides 14, 16, 18 to move to the demounted position shown in Figure 1. Similar clips and flanges are to be found along the edges of the side 20 and the sides 14 and 18 respectively.

The edge 24 of the side 16 also includes two lugs 40, 42 located near the top and near the bottom of the edge 24 respectively, designed to be located in openings 44, 46 in the edge 36 of the side 18 in use, further to hold the sides 16, 18 in the assembled position. Similar lugs and openings are to be found along the opposite edge 26 of the side 16 and the edge 38 of the side 14, and likewise along the edges of the side 20 and the edges of the sides 14, 18.

The base 12 and the sides 14, 16, 18, 20 include a plurality of ventilation holes 48 to allow for ventilation in the crate 10 in use. It can be seen that the ventilation holes 48 in the side 14 are in register with the ventilation holes 48 in the side 18 and likewise the ventilation holes 48 in the side 16 are in register with the ventilation holes 48 in the side 20 to assist with the ventilation. Further, the ventilation holes 48 in the base 12 will be in register with ventilation holes in a similar crate stacked on top of or below the crate 10.

The crate illustrated in Figure 2 also includes carrying holes 50 to provide carrying handles for the crate 10. Further, the crate 10 illustrated in Figure 2 includes recesses 52 which are designed to cooperate with

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protrusions 54 on a similar crate 10 to stabilize the crates 10 when stacked one on top of another.

Further details of the attachment means of the crates of Figures 1 to 3 are shown in Figures 4 and 5. It can be seen that the clip 28 comprises a channel-shaped member 30 designed to cooperate with the flange 32, as illustrated in Figure 5, to hold the sides 16, 18 in the assembled position. As can be seen from Figure 5, in the assembled position, the flange 32 abuts against an inner wall of the channel-shaped member 30 of the clip 28. To release the flange 32 from the clip 28, the channel-shaped member 30 is bent away from the flange 32, by virtue of the resilience of the plastics material from which the crate 10 is manufactured, thus releasing the flange 32.

The crate 10 may be manufactured as follows. The base 12 is formed from a suitable plastics material. Likewise the sides 14, 18 together with the hinges 22 are formed from a suitable plastics material and the sides 16, 20 together with the hinges 22 are also formed from a suitable plastics material. The hinges 22 are then slotted in to the base 12 to form the structure shown in Figure 1. The clips 28, 30 and the flanges 32, 34 are



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also formed integrally with their sides 14, 16, 18, 20. The resilience of the plastics material from which the sides 14, 16, 18, 20 are made allows the clips 28, 30 to be moved from one position to another. The ventilation holes 48 in the base 12 and the sides 14, 16, 18, 20 may be formed in the base 12 and the sides 14, 16, 18, 20 during molding and are preferably rounded on the interior sides of the base 12 and the sides 14, 16, 18, 20, to prevent damage to commodities such as agricultural produce to be contained in the crate 10. The carrying holes 50, the recesses 52 and the protrusions 54 may also be molded into the sides 14, 16, 18, 20 during formation.

The crate 10 of the invention is of particular application for the storage and transport of agricultural produce such as bananas, lettuces, soft fruit and the like.

The crate of the invention has several advantages. Firstly, as it is made of a plastics material, it can be reused. Secondly, as it can be demounted, it is easy to store when not in use, and does not take up a lot of space. Thirdly, it is easy to assemble the crate into its assembled position when it is required for use.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1.

A reusable demountable crate comprises:

a base,

first, second, third and fourth sides hingedly attached to the base so that the sides are movable between a demounted position in which the sides are in the same plane as the base and an assembled position in which the sides are at right angles to the base to form the crate, and

releasable attachment means between each of the first and second sides, the second and third sides, the third and fourth sides, and the fourth and first sides, releasably to hold the sides in the assembled position,

the attachment means comprising an elongate channel-shaped member on an edge of one side adjacent an edge of the other side, and a flange on the adjacent edge of the other side, the flange adapted to be received in the open mouth of the elongate channel-shaped member and to abut an inner wall of the elongate channel-shaped member to hold the two sides in the assembled position, and the elongate channel-shaped member being adapted to be bent away from the flange to release the flange to allow the two sides to move to the demounted position, the elongate channel-shaped member and the flange being formed integrally with their respective sides, and the attachment means further comprising a pair of lugs on the same edge as the elongate channel-shaped member, one lug located near the top and the other lug located near the bottom of the edge and a pair of openings in the same edge as the flange, each opening being designed to receive a lug when the sides are in the assembled position,

the crate being made from a suitable plastics material.

2.

A crate according to claim 1 wherein one or more of the sides and/or the base of the crate include one or more ventilation holes.



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3.

A crate according to claim 2 wherein the edges of the ventilation holes in the interior of the crate are rounded.

4.

A crate according to claim 2 or claim 3 wherein the ventilation hole or holes in the first side of the crate are in register with the ventilation hole or holes in the third side of the crate and the ventilation hole or holes in the second side of the crate are in register with the ventilation hole or holes in the fourth side of the crate.

5.

A crate according to any one of claims 1 to 4 which includes holes for carrying of the crate.

6.

A crate according to any one of claims 1 to 5 made from high density polyethylene.

7.

A crate according to any one of claims 1 to 5 made from polypropylene.

8.

A reusable demountable crate substantially as herein described with reference to any one of Figures 1 to 5 of the accompanying drawings.

DATED this 22nd day of March, 1994.

EDWARD JOSEPH KHOURY

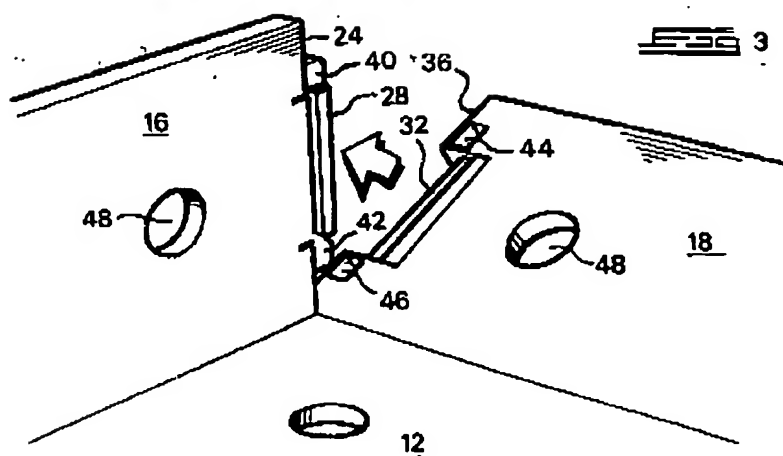
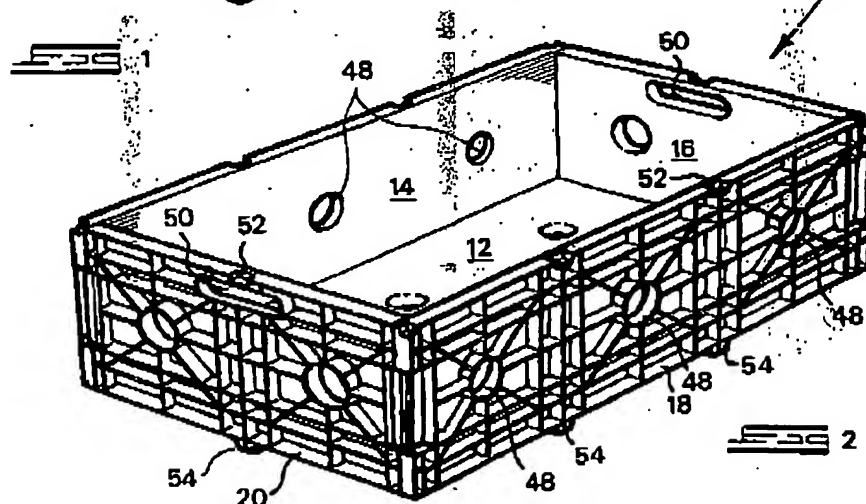
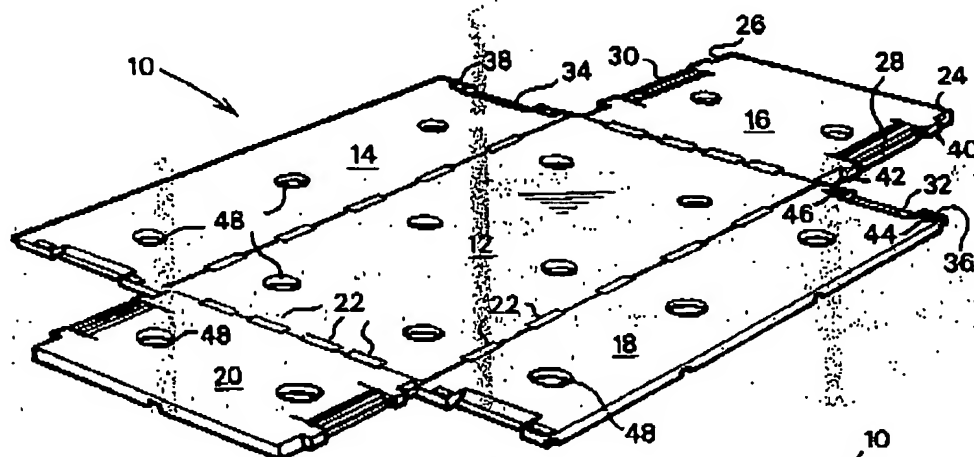
By his Patent Attorneys:

DAVIES COLLISON CAVE

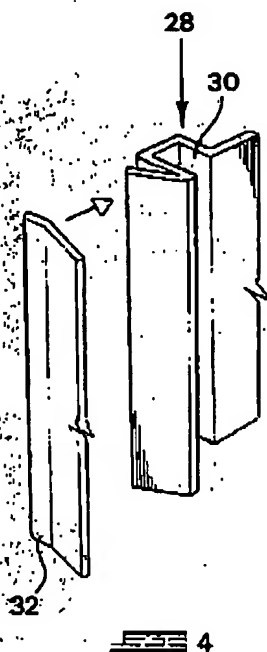


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